ABSTRACT

THE EFFECT OF DIFFERENT BINDER ADDITION METHOD ON THE PHSYCAL PROPERTIES OF GRANULE AND TABLET FROM DRIED NANOSUSPENSION HESPERETIN-POLOXAMER 188

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Hesperetin has poor solubility and low dissolution rate. This problem caused low oral bioavaibility of hesperetin. Drug delivery approach to enhance solubility and dissolution rate is nanosuspension. Nanosuspension is dispersion of nanocrystal in stabilizer solution. Nanosuspension of hesperetin (< 250 nm) was made by wet milling method with poloxamer 188 28,57% (w/w) as stabilizer. However, nanosuspension has a limited long-term stability. Solidification with wet granulation became strategy to overcome this problem. In wet granulation, nanosuspension used as granulating liquid. Lactose : avicel PH101 (1:1) were used as diluent and sodium starch glycolate (SSG) 2% (w/w) was used as disintegrant. PVP K30 (5% w/w) was added as binder in wet and dry addition during granulation. Granules mixed with magnesium stearate (MgS) 1% (w/w), then 1000 mg granules compressed into tablet used compaction force 10 kN. The objective of this study was to understand the effect of different binder addition (wet and dry) on granule and tablet physical properties using planetary mixer granulation. Result of this study showed that wet binder addition has bigger granule size and lower fines compared to dry binder addition. Tablets obtained from those methods had the same hardness and friability. Nevertheless, tablets obtained from dry method had longer disintegration time compared to the tablets produced by wet method. With regard to the dissolution, tablets from both mehod showed profile of extended release instead of immediate release. It can be concluded that wet addition method produced better physical properties of granule and tablet compared to dry method. Nevertheles, disolution rate showed that tablet from both methods did not fulfill the requirement of disolution for immediate released.

Keyword : *Hesperetin, poloxamer 188, wet granulation, planetary mixer, binder addition*tion